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A.D. 1854 . . . . . N<sup>o</sup> 193.

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S P E C I F I C A T I O N

OF

THOMAS WICKSTEED.

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MANUFACTURE OF SEWAGE MANURE.

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L O N D O N :

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Manufacture of Sewage Manure.

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**LETTERS PATENT** to Thomas Wicksteed, of Leicester, in the County of Leicester, Civil Engineer, for the Invention of "**IMPROVEMENTS IN THE MANUFACTURE OF SEWAGE MANURE.**"

Sealed the 29th March 1854, and dated the 26th January 1854.

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**PROVISIONAL SPECIFICATION** left by the said Thomas Wicksteed at the Office of the Commissioners of Patents, with his Petition, on the 26th January 1854.

I, THOMAS WICKSTEED, do hereby declare the nature of the said Invention for  
5 "**IMPROVEMENTS IN THE MANUFACTURE OF SEWAGE MANURE**" to be as follows:—

I precipitate the fertilizing matter from sewage water by mixing it with lime and finely divided charcoal in the following manner:—I reduce the charcoal to fine powder, and I mix it and the lime with water, and I add this mixture to the sewage water by allowing a stream of the mixture to flow into  
10 another stream of the sewage water by means of two pumps, one for the mixture and the other for sewage, properly proportioned, and working stroke and stroke together or otherwise. The united stream is well mixed by agitators, and passes into a reservoir where a precipitate soon subsides. This precipitate is collected and dried by exposure to the air with or without the aid of heat, or  
15 by means of centrifugal machinery, as described in the Specification of former Letters Patent granted to me, and bearing date respectively at Westminster, the 24th February 1851; at Edinburgh, the 19th February 1851; and at Dublin, the 26th February 1851. The charcoal may be ordinary wood char-



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coal, or charcoal made from peat, tan, or bones, or lamp black, or the refuse charcoal obtained in the manufacture of prussiate of potash or other description of carbonized matter.

The charcoal must in all cases be reduced to fine powder.

**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed 5  
by the said Thomas Wicksteed in the Great Seal Patent Office on the  
24th July 1854.

**TO ALL TO WHOM THESE PRESENTS SHALL COME**, I, THOMAS  
WICKSTEED, of Leicester, in the County of Leicester, Civil Engineer, send  
greeting. 10

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters  
Patent, bearing date the Twenty-sixth day of January, in the year of our Lord  
One thousand eight hundred and fifty-four, in the seventeenth year of Her  
reign, did, for Herself, Her heirs and successors, give and grant unto me, the  
said Thomas Wicksteed, Her special licence that I, the said Thomas Wick- 15  
steed, my executors, administrators, and assigns, or such others as I, the said  
Thomas Wicksteed, my executors, administrators, and assigns, should at any  
time agree with, and no others, from time to time and at all times thereafter  
during the term therein expressed, should and lawfully might make, use,  
exercise, and vend, within the United Kingdom of Great Britain and Ireland, 20  
the Channel Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN THE  
MANUFACTURE OF SEWAGE MANURE**," upon the condition (amongst others) that  
I, the said Thomas Wicksteed, by an instrument in writing under my hand  
and seal, should particularly describe and ascertain the nature of the said  
Invention, and in what manner the same was to be performed, and cause the 25  
same to be filed in the Great Seal Patent Office within six calendar months  
next and immediately after the date of the said Letters Patent.

**NOW KNOW YE**, that I, the said Thomas Wicksteed, do hereby declare  
the nature of the said Invention, and in what manner the same is to be per-  
formed, to be particularly described and ascertained in and by the following 30  
statement thereof (that is to say):—

I precipitate the fertilizing matter from sewage water by mixing it with lime  
and finely divided charcoal in the following manner:—I reduce the charcoal to  
fine powder, and I thoroughly mix it and the lime with water so as to obtain a  
uniform cream or milk of lime and charcoal. I add this mixture to the sewage 35  
water by causing a stream of the mixture to flow into a stream of the sewage



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water by means of two pumps, one of which pumps in the aforesaid mixture, while the other pumps the sewage water. These pumps work together, and are of such proportions that they may deliver the proper relative proportions of each liquid. These proportions may be varied according to the richness of the  
5 sewage water, and the strength of the mixture of lime and charcoal. It is convenient to make the lime and charcoal pump of about one thirty-fifth of the capacity of the sewage water pump, and to provide it with an adjustable lever so that the proportion of liquid raised by it may be varied. The proportion of the lime and charcoal may also be varied by varying the strength  
10 of the mixture, which is kept in constant motion by means of an agitator, to prevent the separation of the lime and charcoal from it, and to preserve its uniformity. When the sewage water is not raised by a pump, the lime and charcoal mixture may be allowed to flow into it through a valve or cock properly adjusted so as to deliver the necessary quantity.

15 The united stream of sewage water and lime and charcoal mixture is conducted through a cistern or cisterns containing an agitator or agitators, by which the whole is thoroughly mixed together, and it then passes into reservoirs in which a precipitate soon subsides to the bottom. This precipitate is the sewage manure, which is collected and dried by exposure to the air with  
20 or without the aid of heat, or by means of centrifugal machinery, as described in the Specifications of certain other Letters Patent granted to me, and bearing date respectively at Westminster, the Twenty-fourth day of February, in the year of our Lord One thousand eight hundred and fifty-one; and at Edinburgh, the Nineteenth day of February, in the year of our Lord One thousand  
25 eight hundred and fifty-one; and at Dublin, the Twenty-sixth day of February, in the year of our Lord One thousand eight hundred and fifty-one.

The charcoal above mentioned may be ordinary wood charcoal or charcoal made from peat, tan, or bones, or lamp black, or the refuse charcoal obtained in the manufacture of prussiate of potash or other description of carbonized  
30 matter. It must in all cases be reduced to fine powder, and thoroughly mixed with the water. The lime and charcoal may be separately mixed with water, and introduced by separate pumps, but I prefer to mix them together, and to employ the same pump for introducing them. By proceeding in the manner herein-before described, the charcoal and the lime are thoroughly mixed with  
35 the sewage water, whereas, if powdered charcoal were simply scattered upon the sewage water in the reservoir, the mixture would be very imperfect and unequal.

Having now described the nature of my said Invention, and in what manner the same is to be performed, I wish it to be understood that I do not



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claim generally the addition of lime or charcoal to sewage water; but what I claim is,—

The mixing lime and charcoal with sewage water, in manner herein-before described, in and for the manufacture of sewage manure.

In witness whereof, I, the said Thomas Wicksteed, have hereunto set my 5  
hand and seal, this Twenty-second day of July, in the year of our  
Lord One thousand eight hundred and fifty-four.

THO<sup>S</sup> WICKSTEED. (L.S.)

Witness,

CHARLES THOMAS WARD,

7, Market Street,

Leicester.

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LONDON:

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